

IN THE CLAIMS:

Please amend the claims as follows:

1. (currently amended) A method comprising:
determining a characteristic parameter describing line-of-sight conditions of a radio propagation environment of ~~at least~~ each antenna for two base stations in a mobile telecommunications system, wherein the characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels;
measuring at least one feature of a signal transmitted between a mobile station and an antenna of each of the ~~at least~~ two base stations, the feature being such that it can be used for determination of distances between the mobile station and the ~~at least~~ two base stations; and
computing the distances between the mobile station and the ~~at least~~ two base stations using the measured signal feature and the characteristic parameter describing the line-of-sight conditions of the ~~at least~~ antennas for the two base stations; and
determining a current geographical location of the mobile station based on the determined distances between the mobile station and the ~~at least~~ two base stations; wherein the at least one feature comprises at least travel time or travel time difference of the signal between the mobile station and the ~~at least~~ two base stations and wherein each base station comprises a plurality of antennas, each antenna covering a sector of the base station.
- 2-5. (canceled)
6. (currently amended) A method according to claim 1, wherein the at least one feature comprises at least signal travel time differences between the mobile station and the ~~at least~~ two base stations.
- 7-8. (canceled)
9. (currently amended) A method according to claim 1, comprising use of a weighted least square method for determination of distances between the ~~at least~~ two base stations and the mobile station, wherein the used weighting matrix is the inverse of an error covariance matrix.

10. (previously presented) A method according to claim 1, comprising:
defining radio propagation environments for several stations; and
classifying the stations in different radio propagation environment classes;
wherein the characteristic parameter is based on the class of the station.
11. (previously presented) A method according to claim 1, wherein the data for the
characteristic parameter is stored and processed in a location service node implemented in the
mobile telecommunications system.
12. (canceled)
13. (previously presented) A method according to claim 1, wherein the determining the
characteristic parameter comprises:
determining the current geographical location of the mobile station in a way that is
external to the telecommunications system; and
inputting the results of the determination to the mobile telecommunications system.
14. (previously presented) A method according to claim 13, comprising use of a satellite
based positioning system for the determining the current geographical location of the mobile
station.
15. (currently amended) Apparatus, comprising:
storage device for storing a characteristic parameter describing line-of-sight
conditions of a radio propagation environment of each antenna for at least two base stations,
wherein the characteristic parameter describes excess path lengths caused by
obstacles in the radio propagation environment by means of one of a number of discrete
levels;
measurement device for measuring a feature of a signal transmitted between the
mobile station and an antenna of each of the at least two base stations for determination of
distances between the mobile station and the ~~at least two~~ base stations; and
a controller for receiving an outcome of the measuring for defining the distances
between the mobile station and the ~~at least two~~ base stations based on the outcome of the
measuring and the characteristic parameter, and for determining a current geographical

location of the mobile station based on the determined distances between the mobile station and the ~~at least two~~ base stations;

wherein the feature of the signal is based on travel time or travel time difference of the signal between the mobile station and the ~~at least two~~ base stations and wherein each base station comprises a plurality of antennas, each antenna covering a sector of the base station.

16-18. (canceled)

19. (previously presented) The apparatus according to claim 15, wherein different radio propagation environments of different stations are classified in different radio propagation environment classes and the characteristic parameter is based on the class of the station.

20-21. (canceled)

22. (previously presented) The apparatus according to claim 15, wherein the mobile station comprises a sector antenna.

23. (currently amended) A location server for use in a telecommunications system for provision of location data of a mobile station having a radio connection with ~~at least two~~ base stations of the telecommunications system, comprising:

means for receiving measurement data from the telecommunications system concerning a feature of the connection between the mobile station and the ~~at least two~~ base stations for determination of distances between the mobile station and the ~~at least two~~ base stations;

storage means for storing a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of the each antenna for the ~~at least two~~ base stations, wherein the characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels;

control means for defining the distances between the mobile station and the ~~at least two~~ base stations on the basis of the received measurement data and the characteristic parameter and for determining a current geographical location of the mobile station based on the determined distances between the mobile station and the ~~at least two~~ base stations;

wherein the feature of the connection is based on travel time or travel time difference of the signal between the mobile station and the ~~at least two~~ base stations and wherein each

base station comprises a plurality of antennas, each antenna covering a sector of the base station.

24. (currently amended) An arrangement, comprising:
a first station in a telecommunications system;
a second station for communicating by radio with the first station in the telecommunications system;
the arrangement configured to define a current geographical location of the first station with a source of location information that is external to the telecommunications system, to determine a feature of a radio signal received by one of the stations from two other stations, and to calculate a parameter describing line-of-sight conditions of a radio propagation environment according to the current geographical location of the first station and the determined feature, wherein the parameter describes excess path lengths caused by obstacles in the environment with one of a number of discrete levels;
wherein the feature of the radio signal is based on travel time or travel time difference of the signal between the station and the antennas of the two other stations, each antenna covering a sector of its station.
25. (previously presented) An arrangement according to claim 24, configured to receive signals from a satellite based positioning system.
26. (previously presented) An arrangement according to claim 24, configured to determine if an update of the data concerning the radio propagation environment is required.
27. (previously presented) An arrangement according to claim 24, wherein the first station comprises a portable device.
28. (currently amended) A method according to claim 1, wherein the signal is transmitted from the ~~at least two~~ base stations to the mobile station and the signal is measured at the mobile station.
29. (currently amended) A method according to claim 1, wherein the signal is transmitted from the mobile station to the ~~at least two~~ base stations and the signal is measured at the ~~at least two~~ base stations.

30. (currently amended) An arrangement according to claim 15, wherein the signal is transmitted from the ~~at least two~~ base stations to the mobile station and the signal is measured at the mobile station.

31. (currently amended) An arrangement according to claim 15, wherein the signal is transmitted from the mobile station to the ~~at least two~~ base stations and the signal is measured at the ~~at least two~~ base stations.